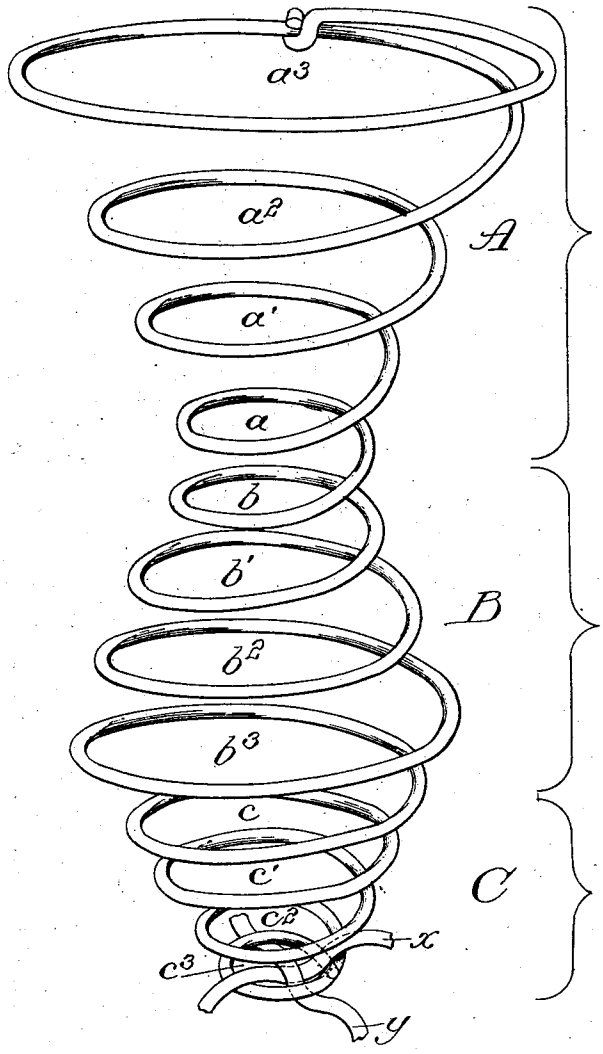
No. 755,729. PATENTED MAR. 29, 1904.

O. D. WHITE.

SPRING.

APPLICATION FILED APR. 13, 1903.

NO MODEL.



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No. 755,729. Patented March 29, 1904.

UNITED STATES PATENT OFFICE.

ORVANDO D. WHITE, OF CHICAGO, ILLINOIS.

SPRING.

SPECIFICATION forming part of Letters Patent No. 755,729, dated March 29, 1904.

Application filed April 13, 1903. Serial No. 152,299. (No model.)

To all whom it may concern:

Be it known that I, ORVANDO D. WHITE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Springs, of which the following is a specification.

My invention relates to upholstery-springs for use in "springing up" chairs, sofas, couches, spring-beds, and like structures.

In springs as now manufactured for use in making or springing up spring-beds, sofas, couches, and like articles of furniture the spring structure consists of a series of spring-supports of any suitable form and size, according to the character of the article to be produced, and a series of springs of either the ordinary inverted-cone shape or single-spiral type or the double-spiral or hour-glass type mounted on the supports in any suitable manner and usually having their upper portions or top coils connected by suitable twine or brace-wires of various forms to give rigidity to the structure. When the ordinary inverted-cone-shaped springs, each consisting of a single series of coils or convolutions enlarging in diameter from the bottom coil toward the top coil, are employed, the spring effect is all obtained in the two or three large coils near the top, as the lower coils are so small and closely wound that under ordinary strains they do not yield perceptibly, and hence the effective spring portion of the structure is limited to the upper or soft coils of the springs. This fact is so well recognized among manufacturers of springwork that springs of the single-cone type are commonly known as "half-springs." In the ordinary hour-glass spring, which consists of two cone-shaped springs united at their smallest coils or a double series of convolutions enlarging in diameter on each side of a common line, the spring effect is increased over the single-cone spring above described by reason of the duplication of the soft coils at the top and bottom of the spring; but when these springs are mounted in place on the spring-supports the convolutions next to the bottom coils are forced in contact with the supports every time a spring is compressed, and the result is a thumping or pounding noise that is disagreeable and has rendered this type of spring to a large extent unsaleable. Moreover, when the hour-glass form of spring is employed the springs are attached to the supports at their greatest circumference or largest ends, thereby necessitating the employment of supports having extended bearing-surfaces, such as wide slats. In the most approved forms of springwork as now constructed metallic supports, usually in the form of wires, are employed, and it is inexpedient and often impracticable to properly assemble hour-glass springs upon supports of this character. In making springwork it is advisable and desirable to have the small ends of the springs in contact with the supporting-wires, as this arrangement forms a more compact and rigid connection between the parts, which occupy less space than where the large coils or ends coact with the supports. It is obvious that wire supports acting in conjunction with the small ends of the springs are more desirable than wooden slats or wide flat metallic strips adapted to support the larger ends of the springs.

The object of my invention is to provide a new type or form of upholstery-spring; and the invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawing the figure shows an elevation of an upholstery-spring constructed according to my invention.

Referring to the drawing by reference-letters, A and B denote as a whole the upper and lower sections, respectively, of a spring similar in general outline and construction to the ordinary hour-glass or double-cone spring, each section being composed of a suitable number of coils, specifically designated by the letters a, a', a^2, and a^3 for the section A and b, b', b^2, and b^3 for the section B. In practice I prefer to make the coil b^3 somewhat less in diameter than the coil a^3, although this is a matter of detail that may be varied or changed to suit the exigencies of different kinds of work. I provide an auxiliary set of coils (designated as a whole by the letter C) by developing the wire beyond the coil b^3 into a

series of convolutions specifically designated by the letters c, c', c^2, and c^3, it being understood that as many of these auxiliary coils may be employed as is desired and that they may be of any suitable size. The auxilary or supplemental coils are in the general outline of an ordinary spiral or inverted-cone-shaped spring.

The method of seating the springs upon the supports may be varied in any suitable manner. In the general use of these springs for beds, sofas, chairs, and other articles of furniture the springs are commonly assembled with the reduced end of the auxiliary coils making the attachment with the supports. For this purpose I prefer to employ the screw-seat formed by the small or reduced auxiliary coil or convolution, adapted to interweave with the wire supports x and y at their points of crossing, this being a well-known and highly-efficient form of connection and one most generally in use. It is obvious that the springs may connect with the supports in any suitable manner. For example, their ends may be formed as dowels to enter holes or seats in the supports or may terminate in eyes to be riveted to the supports or may otherwise cooperate with the supports. It is of course to be understood that the springs may also be assembled with their large ends, as a^3, constituting the bases resting on the supports and suitably connected thereto. In car-seats, for example, where slats are more commonly employed as the spring-supports, the springs may be assembled with their large ends as the bases and with the auxiliary coils at the top. The springs are readily adapted for such use, as the ends c^3 may then be turned up as dowels or pins to enter holes in the metal bands commonly employed to form the tops of car-seats or may terminate in eyes to receive the rivets by which the springs and bands are sometimes united.

With springs constructed according to my invention I am enabled to utilize the soft coils of three ordinary single-cone springs, thereby making a sensitive and resilient structure and at the same time provide a small base for making the attachment to the supports, whereby the thumping or pounding noise incident to the use of the ordinary hour-glass spring is entirely eliminated and the connection between the spring and its supports is much more rigid and compact than where an ordinary hour-glass spring is employed.

Having described my invention, what I claim is—

An upholstery-spring composed of a single strand of wire coiled in three sections, each section having a set of relatively soft coils, two of the sections meeting at their reduced ends and one of which sections is developed at its free end into an enlarged coil, and the third section springing from the base of the other of the first-mentioned sections and having a reduced end adapted to engage a suitable support.

In testimony whereof I affix my signature in presence of two witnesses.

ORVANDO D. WHITE.

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